WHAT IS CLAIM IS:

1. A current loop controller for a servo system comprising:

a model reference controller generating a velocity command signal from a current command reference signal of said servo system and generating a current command signal through comparing said velocity command signal with a feedback velocity command signal of said servo system; and

a current controller generating a control signal from said current command signal, said current command reference signal and a current feedback signal in order to drive said servo system.

2. A current loop controller according to claim 1 wherein said servo system is an AC servo system.

3. A current loop controller according to claim 1 wherein said servo system is a permanent magnet servo system.

4. A current loop controller according to claim 1 wherein a transfer function of said model reference controller is $K_t / (J_m s + B_m)$, wherein J_m is a reference of a rotor inertia of a motor, B_m is a damping coefficient of a motor and K_t is a ratio.

5. A current loop controller according to claim 4 wherein a rotor inertia control which is changed according to a load of said servo system is controlled by said model reference controller to be approximate to said reference of said rotor inertia of said motor.

6. A current loop controller according to claim 4 wherein Jm and Bm of said transfer function, $K_t / (J_m s + B_m)$, are according to a default of a specification.

7. A current loop controller according to claim 6 wherein said specification is a steady-state error of said servo system.

8. A current loop controller according to claim 1 wherein said current command signal is generated by said model reference controller according to a difference

between said velocity command signal and said feedback velocity command signal.

9. A current loop controller according to claim 1 wherein said control signal is a voltage-controlled signal.

10. A current loop controller according to claim 1 wherein said control signal is a current-controlled signal.

11. A method for controlling a current loop in a servo system comprising steps of:

generating a velocity command signal from a current command reference signal of said servo system through a first operation;

generating a current command signal through comparing said velocity command signal with a feedback velocity command signal of said servo system; and

generating a control signal from said current command signal, said current command reference signal and a current feedback signal through a second operation in order to drive said servo system.

12. A method according to claim 11 wherein said servo system is an AC servo system.

13. A method according to claim 11 wherein said servo system is a permanent magnet servo system.

14. A current loop controller according to claim 11 wherein a transfer function of said model reference controller is $K_t / (J_m s + B_m)$, wherein J_m is a reference of a rotor inertia of a motor, B_m is a damping coefficient of a motor and K_t is a ratio.

15. A current loop controller according to claim 14 wherein a rotor inertia

control which is changed according to a load of said servo system is controlled by said model reference controller to be approximate to said reference of said rotor inertia of said motor.

16. A current loop controller according to claim 11 wherein said current command signal is generated by said model reference controller according to a difference between said velocity command signal and said feedback velocity command signal.

17. A current loop controller according to claim 11 wherein said control signal is a voltage-controlled signal.

18. A current loop controller according to claim 11 wherein said control signal is a current-controlled signal.